

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Washio et al.
Appl. No.	:	10/561,802
Filed	:	December 22, 2005
For	:	DEVELOPER COMPOSITION FOR RESISTS AND METHOD FOR FORMATION OF RESIST PATTERN
Examiner	:	Le, Hoa Van
Group Art Unit	:	1752

PRE-APPEAL REQUEST FOR REVIEW

Mail Stop AF  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

Applicants request pre-appeal review of the rejection under 35 U.S.C. §103(a) in the Office Action dated January 30, 2007. This request is being filed with a Notice of Appeal and a Terminal Disclaimer to overcome the obviousness-type double patenting rejection. Because the Terminal Disclaimer overcomes the double patenting rejection, its entry would reduce the number of issues for appeal. Accordingly, entry thereof is respectfully requested. Upon entry of the Terminal Disclaimer, the rejection under §103(a) referred to above will be the sole remaining rejection in the present application.

The claims have been finally rejected so the filing of the present paper is proper. No amendments are being filed with this request. The review is requested for the reasons stated below.

Claims 1-4 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Sato et al. (US 5,985,525) in view of Pfeifer (US 3,207,725). The Examiner bases this rejection on three principle bases. First, the Examiner alleges that although Sato et al teach that the presence of a metallic element has adverse effects on the performance of semiconductor devices because the metallic "contaminant" can come away from the developer composition (Sato at col. 1, lines 24-

29), that the “second best” choice would be a metallic element and its charge (see final Office Action, page 6, first paragraph). Second, the Examiner states that since both references are generally related to analogous salts of alkali metal(s) and ammonium(s) of alkyl diphenyl ether sulfonic acid(s), that it would have been obvious to use the metal salts of Pfeifer in the developer composition of Sato. Finally, the Examiner asserts that no unexpected results have been provided that show the importance of the claimed metal-containing surfactants. As discussed below, each of these premises is erroneous.

**Metal-Containing Surfactants are not Taught as a “Second Best” Choice**

Contrary to the assertion of the Examiner, the use of a metal-containing surfactant would not be a “second best” choice. Such a characterization implies that such a choice would still be a suitable, albeit less desirable one. However, Sato actually teaches that the use of metal-containing surfactants would render the invention disclosed therein, completely unsuitable for its intended purpose, namely manufacture of semiconductors. *See, for example*, Sato at Column 1, lines 24-29, where it is stated that:

It is usual that the alkaline developer solution contains an organic base free from any metallic element . . . in consideration of the possible adverse influences caused on the performance of the semiconductor devices by the metallic contaminant coming from the developer solution.

Thus, rather than teaching that a metal-containing surfactant is a “second best” choice, Sato characterizes metallic elements as a “contaminant” which adversely influences performance of the semiconductor devices being produced. As such, the use of metallic elements in combination with Sato’s teachings would render these teachings unsatisfactory for the intended purpose of manufacturing semiconductor devices.

According to M.P.E.P. 2143.01 (V), if (the) proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). Since the modification proposed by the Examiner would render the teachings of Sato unsatisfactory for their intended purpose, there can be no motivation to modify the teachings of Sato to incorporate the metallic components of Pfeifer. As such, no *prima facie* showing of obviousness can be maintained on the basis of these two references.

### **Alkali Metal and Alkali Ammonium Salts are not Analogous**

As is clear from the above discussion, the alkali metal and alkali ammonium salts are clearly not analogous because the use of alkali metal salts is taught by Sato to have negative effects and should be avoided. If the salts were truly analogous, then the effect observed with each type of salt would be similar, which Sato discloses is clearly not the case. Moreover, as described below, the nonanalogous nature of these compounds is further evidenced by the unexpected results obtained when the alkali metal salts are used.

Since the two classes of compounds nonanalogous, one having ordinary skill in the art could have had no reasonable expectation of success in using the alkali metal salts of Pfeifer. Sato teaches that the use of such metals should be avoided due to their negative effects on semiconductors. Thus, one skilled in the art would reasonably have expected the metallic compounds not to be used successfully. Without this reasonable expectation of success, no proper *prima facie* showing of obviousness has been set forth. *See*, MPEP 2143.02.

### **The Specification Discloses Unexpected Results**

Moreover, contrary to the Examiner's unfounded allegation, the specification does provide unexpected results related to the use of the claimed metal-containing anionic surfactants. These unexpected results were explained in applicants' response filed on April 27, 2007. Briefly, the relative dissolution time of the claimed alkali metal-containing surfactants in examples 4, 9 and 10 of the present specification is lower than the corresponding ammonium-based surfactant in Comparative Example 1, meaning that the dissolution rate (developing sensitivity) is unexpectedly significantly improved when a metal containing anionic surfactant is used, compared to the dissolution rate obtained when a non-metallic (ammonium) anionic surfactant is used (see response filed April 27, 2007, page 5, last paragraph). These unexpected results strongly support the nonobviousness of the present invention, and would rebut a *prima facie* showing of obviousness even were such a showing present.

### **Alleged Misunderstanding**

At the top of page 7 of the Advisory Action, the Examiner dismissed much of the Applicants' arguments as having little value because they related to "the misunderstanding issues" that are described on page 2 of the Advisory Action. However, Applicants did not rely on the issues discussed on page 2 of the Advisory Action in formulating arguments in support of patentability. Rather, as explained in Applicants' responses filed December 20, 2006 and April

27, 2007, Applicants argued that the combination of Sato with Pfeifer would not render the claimed invention obvious because (1) there is no motivation to combine the references; and (2) the specification indeed does provide unexpected results when the claimed developer compositions comprising a metal-containing anionic surfactant is used.

**Conclusion**

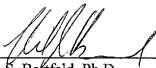
No proper *prima facie* showing of obviousness can be set forth by the combination of Sato and Pfeifer because one of ordinary skill in the art would not be motivated to combine the teachings of these references in light of Sato's express teachings that metallic components have adverse effects. Moreover, in light of these teachings of Sato, one of ordinary skill in the art could not have reasonably expected successful results from combination of these two references. Thus, for this additional reason, no *prima facie* showing of obviousness can be sustained on the basis of these two references. Furthermore, even if a proper *prima facie* showing of obviousness had been set forth, such a showing would be effectively rebutted by the unexpected results reported in Applicant's specification.

In view of the foregoing, Applicants respectfully request reconsideration and withdrawal of the present rejection under 35 U.S.C. 103(a). The terminal disclaimer obviates the sole other issue remaining in this case. Accordingly, Applicants respectfully request that the present application be allowed and passed to issue.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 5/24/07

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